

REMARKS

Claims 1, 5, 9 and 11 are currently amended to more clearly define the present invention and to describe the characteristics, objects and efficacy of the present invention. The original Fig. 2 supports the amendments without introducing any new matter.

In view of the following remarks, reconsideration and of the claims of the subject application is respectfully requested.

Rejection under 35 USC § 103

1. Claims 1, 4, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Yamada (JP9-56092).

The Examiner stated that APA discloses a unitary rotor magnet comprising the features of "a rotor (12) and a stator (11)" of claim 1 of the subject application and that Yamada discloses the features of "continuous curve surfaces and convex (3f) and concave (3g) curve portions for the purpose of improving torque. "

However, the features of the present invention differ from the teachings of the cited references as follows:

- (1) Please refer to Fig. 1 in the attached drawing, which is Fig. 6 of Yamada's document. The rotor 3 disclosed by Yamada is **symmetric** with respect to the added auxiliary center line.
- (2) However, referring to Fig. 2 in the attached drawing, which is Fig. 2 of the subject application, the magnet cylinder is **asymmetric** according to the added auxiliary center line. Therefore, the rotor of the present invention, now recited in claim 1 as "a rotor, the rotor being a unitary, asymmetric magnet cylinder...", is different from the rotor shown in the Yamada patent.
- (3) The Examiner stated that the permanent magnet 3d disclosed by Yamada is unitary. However, the Yamada patent only discloses that the permanent magnets 3d have convex and curve surfaces. In claim 1 and Figs. 4, 5, 6 and 12 of Yamada's patent, the permanent magnets 3d shown consist of at least 6 magnets arranged alternatively. Therefore, the permanent magnet feature of Yamada is different from that of the present invention, which is

recited in the claims as “a rotor, the rotor being a **unitary magnet cylinder**...”.

- (4) Yamada also shows a **uniform clearance t_1** between the magnets 3d and the yoke 3b, which is to be filled up with adhesive 3c to stick the magnets 3d to the yoke 3b.
- (5) However, according to the present invention, the rotor or the stator has convex and concave curve portions for changing the air gap between the rotor and the stator while starting the motor so as to start motor easily, radiate the internally generated heat quickly and prevent the locked rotor condition as described in the last two paragraphs of the specification. Furthermore, unlike the air gap shown and described in the Yamada patent, the air gap of the subject application **does not need to be uniform**.

Therefore, the present invention differs from Yamada’s patent. Accordingly, it is respectfully submitted that claim 1, and therefore claims 4 and 13 which depend from claim 1, are patentable over these references.

2. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Yamada as applied to claim 1, 4 and 8 above, and further in view of Pletscher (1566693).

- (1) As described above, neither APA nor Yamada discloses a stator, the stator being a **unitary, asymmetric** magnet cylinder as recited in claim 5.
- (2) Pletscher only discloses a motor comprising a stator and a rotor wherein the rotor comprises coils that may be made stationary for the purpose of reducing manufacturing costs. Pletscher’s patent does not disclose a stator, the stator being a **unitary, asymmetric** magnet cylinder as recited in claim 5. Further, one skilled in the art cannot modify the motor of APA and Yamada with the teaching of Pletscher.

For the reasons expressed above, it is respectfully submitted that claim 5 and therefore claims 8 and 14, which depend from claim 5, are patentable over these references.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Hayakawa (5162684).

The Examiner states that Hayakawa disclosed the feature of an irregular lumpy edge of the present invention, and that one skilled in the art could modify the motor of APA with the rotor of Hayakawa for the purpose of reducing cogging torque.

However, the features of the present invention differ from those of the cited references as follows:

- (1) Please refer to Fig. 3 in the attached drawing, which is Fig. 8 of Hayakawa's document. The magnetic-pole portion 1 disclosed by Hayakawa is **symmetric** with respect to the added auxiliary center line. The main purpose of the magnetic-pole portion 1 is to **reduce cogging torque**.
- (2) However, referring to Fig. 2 in the attached drawing, which is Fig. 2 of the present application, the magnet cylinder is **asymmetric** according to the added auxiliary center line. The main purpose is to **generate torque**, which is known by one skilled in the art, for easily starting the motor. Therefore, the rotor of the present invention, which is recited in claim 9 as "a rotor, the rotor being a unitary, **asymmetric** magnet cylinder..." is different from the rotor of the Yamada's patent.

Therefore, the present invention is patentably distinct from Hayakawa's patent. Accordingly, it is respectfully submitted that claim 9 is patentable over these references.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Hayakawa as applied to Claim 9 above, and further in view of Pletscher (1566693).

- (1) As described above, neither APA nor Hayakawa discloses a stator, the stator being a unitary, **asymmetric** magnet cylinder recited in claim 11.
- (2) Pletscher only discloses a motor comprising a stator and a rotor wherein the rotor comprises coils that may be made stationary for the purpose of reducing manufacturing cost. Pletscher's patent does not disclose a stator, the stator being a unitary, **asymmetric** magnet cylinder recited in claim 11.

Further, one skilled in the art cannot modify the motor of APA and Yamada based on the teachings of Pletscher.

For the foregoing reasons, applicants submit that claim 11 is patentable over these references.

Reconsideration of the claims and withdrawal of the rejections of claims 1, 4, 5, 8, 9, 11, 13 and 14 are respectfully requested.

Conclusion

According to the descriptions of the present application and the cited references, and referring to the figures with added auxiliary center line in the attached drawings, it is easy to distinguish the significant differences between the present invention and the teachings of the cited references. As explained above, the cited references fail to disclose or suggest the invention recited in the claims of the subject application.

Applicants respectfully submit that all of the pending claims are in condition for allowance. Accordingly, reconsideration and passage to allowance of the present application at an early date are earnestly solicited. If the undersigned can be of assistance in advancing the subject application to allowance, the Examiner may contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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